OS-4

General Motors OnStar® Interface for GMLAN Vehicles With or Without Factory Amplified Audio Systems

***These instructions only support revision 1.2.3.8 or higher of the OS-4**

The OS-4 is a plug and play interface that allows the replacement of a General Motors GMLAN factory radio. The OS-4 will maintain operation of the OnStar® system in vehicles with Bose® audio systems, amplified audio systems and also audio systems without external amplifiers . The OS-4 has on board switching that allow audio from the OnStar® system to play through the two front factory speakers. This interface retains all warning chimes, audible turn signal indicators, Bluetooth and the Vehicle Rear Parking Assist System (if equipped). The factory XM radio tuner can be controlled from the Steering Wheel Controls (SWC) or Rear Seat Entertainment (RSE) Controls. RSE headphone jacks will also remain active and are designed for use with dual zone radios and the factory installed XM tuner. If the overhead LCD is present the IR headphone system will also be active.

- OnStar® active LED and Ignition on LED.
- New radio will operate with the vehicle RAP (Retained Accessory Power) system.
- Provides +12v RAP circuit, Illumination, Vehicle Speed Sensor (VSS) Output, Parking brake, and Reverse trigger outputs.
- OnStar® Volume control via factory steering wheel audio controls or a push-button switch.
- Safety chime audio level is controlled through the Driver Information Center (DIC).
- RSE Controls will play the aftermarket radios dual zone source or the factory XM tuner if serviced.
- Overhead RSE LCD is usable as well as factory IR headphone system and Rear Auxiliary Input Jacks (use PAC Part # GMRVD).
- Steering wheel radio controls can be retained to control new radio by using the SWI-X, ECL2, JACK or PS.

Notes

1. The OS-4 will retain the use of the factory installed XM receiver. Factory SWC or RSE Controls must be present for use of this feature.
2. You may use this interface if the vehicle does not have OnStar® but you need to interface with the Bose® amplifier
3. This interface will work in amplified or non-amplified audio systems.
4. This interface retains the 5.1 audio system in equipped Cadillac vehicles.
5. Built in Smart Mute Circuitry will play OnStar® through the front speakers and allow the RSE audio jacks to continue playing the audio source selected by the RSE Controls.

Supported Vehicles

The Following General Motors Vehicles using the GMLAN Data Bus

Chevy: Express (08-09) Equinox (07-09) Suburban (07-09) Tahoe (07-09) Avalanche (07-09) Monte Carlo (06-07) Silverado - not classic (07-09) Impala (06-09) Traverse (09)
GMC: Acadia (07-09) Yukon Denali (07-09) Yukon (07-09) Sierra - not classic (07-09)
Cadillac: DTS (06-09) Escalade - including ESV and EXT (07-09) SRX (07-09)
Buick: Enclave (08-09) Lucerne (06-09)
Hummer: H2 (08-09)
Pontiac: Torrent (07-09)
Saturn: Outlook (07-09) Vue (08-09)
Suzuki: XL-7 (07-08)

Installation

• Aftermarket radio connections are made at the 20-pin OS-RADPWRAUDIO connector. A detailed description of these wires is on the next page.

• If the vehicle has Rear Seat Audio Controls and the XM tuner is serviced plug the 8 pin XM Audio output cable into the OS-4. The RCA cables will feed the XM audio into the aftermarket radios AUX input (if available). The XM RCA cables are not necessary for Rear Seat Audio but will allow the headunit to play the XM audio through the cabin.

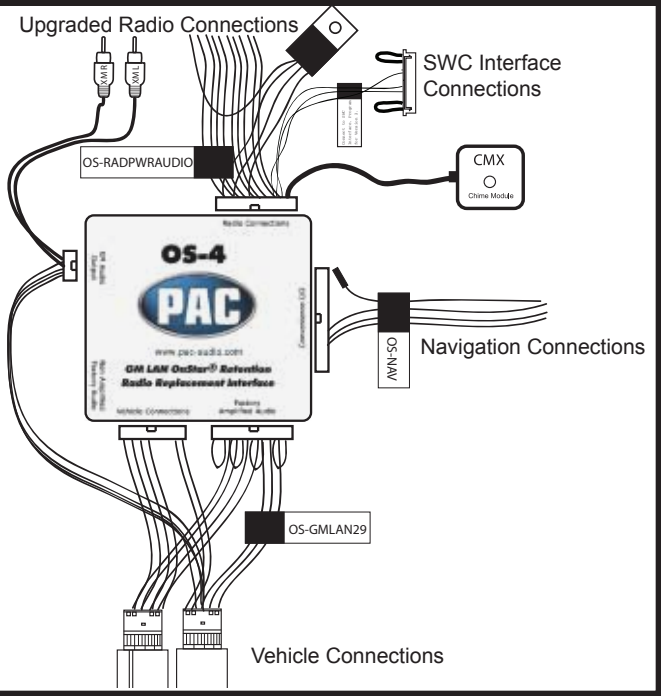
• Factory installed audio options such as Bose, Harman Kardon or Pioneer amplifiers will determine the 16-pin OS-GMLAN29 connection. If the vehicle has a factory installed amplifier use the Factory Amplifier Audio location. If a factory installed amplifier is not present use the Non-Amplified Factory Audio location.

• The OS-NAV connector has VSS, Reverse and Parking Brake outputs as well as the OnStar push button volume adjustment input.

• If SWC buttons are present and retained using a radio specific SWC interface use the provided plug. No other connections or splices are necessary.

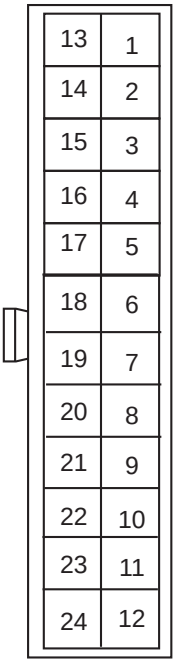
• The CMX retains all factory warning and safety chimes. If the vehicle chimes when the radio is removed the CMX is not needed.

• The Mute loop (if not cut) will turn the ACC. output off when an OnStar or Bluetooth call is made or received. If the aftermarket radio has a mute input cut this loop and connect the outer brown wire to the mute input.



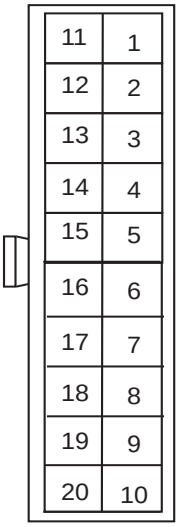
Connecting the OS-4 to an aftermarket radio

OS-NAV (Wire side view)



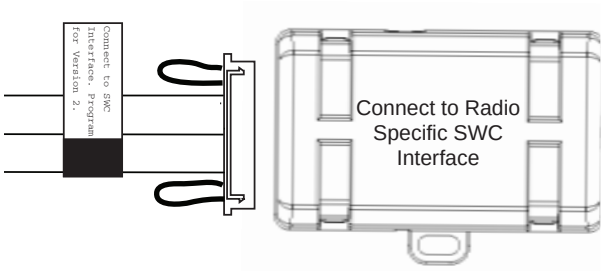
1	Green/White	OnStar Level Control
2	N.C.	
3	N.C.	
4	N.C.	
5	N.C.	
6	N.C.	
7	N.C.	
8	Purple/White	Vehicle Speed Sensor Output
9	N.C.	
10	N.C.	
11	N.C.	
12	N.C.	
13	N.C.	
14	N.C.	
15	N.C.	
16	N.C.	
17	Green	Reverse Light Output
18	Red/White	Parking Brake Output
19	N.C.	
20-24	N.C.	

OS-RADPWRAUDIO (Wire side view)



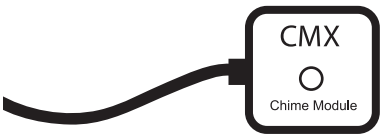
1	White	FL+ Speaker Input
2	Grey	FR+ Speaker Input
3	N.C.	
4	N.C.	
5	Black	Ground
6	Yellow	Battery
7	Brown	Mute Sense Input
8	Purple	RR+ Speaker Input
9	Green	RL+ Speaker Input
10	Brown	Mute Output (-)
11	White/Black	FL- Speaker Input
12	Grey/Black	FR- Speaker Input
13	Red	RAP Output
14	Burgundy	Chime+
15	Orange	Illumination Output (+)
16	Blue/White	Amp On Input
17	White/Green	SWC Output
18	Purple/Black	RR- Speaker Input
19	Green/Black	RL- Speaker Input
20	Black	Chime -

SWC Output Connector



• The OS-4 provides a SWC output connector attached to the OS-RADPWRAUDIO harness. For ease of installation, all necessary connections for a SWI-X, ECL2, JACK, or PS have made for you.
• When using this SWC output connector the radio specific SWC interface must be programmed for version 2 (refer to SWC interface programming instructions for exact programming sequence).
• Both loops should also remain in tact.
• During steering wheel button assignment programming each button should be pressed and held for 1 second after the SWC interface LED goes out with the exception of the Speak button.
• The speak button should be pressed for less than 1 second and released.
• Pressing the Speak button for longer than 1.5 SEC will activate OnStar.

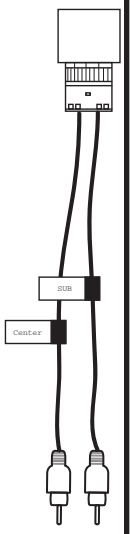
Using the CMX



• The provided CMX will play all safety/warning chimes and turn signal/hazard light tones in vehicles that do not play these chimes/tones when the factory installed radio is removed.
• When the radio is removed - if factory chimes still play the CMX is not needed. The CMX cable (2-pin connector attached to the OS-RADPWRAUDIO interface harness) should be tied up as it is not used for any other connections.
• To adjust the level of the warning and safety chimes refer to the vehicles owner manual for Driver Information Center (DIC) settings. Not all vehicles have a DIC. If the DIC is not available the chime level is not adjustable.

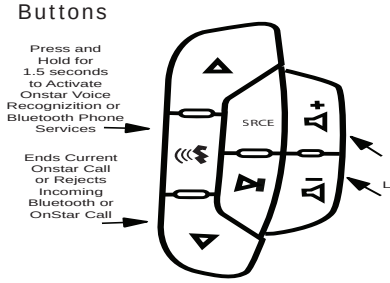
Center and Sub Connections

• Some Cadillac vehicles are equipped with a Dolby Surround Sound Amplified Audio System. The amplifiers 5.1 mode is enabled when the RSE system is off and OnStar is not active. If the aftermarket radio has a dedicated center channel and or sub output connect it to the provided cable as labeled. Refer to the aftermarket radios owner manual for surround sound settings and adjustments.
• If the aftermarket radio to be installed does not have a dedicated center channel or sub output do not use this cable. To ensure best sound performance channel summing is not recommended. Use this cable according to the outputs that are available.
• This cable can also be used for factory reverse camera retention if available and if center channel and or sub connections are not needed (see Notes section of this manual).



Connecting to and Using OnStar

From SWC Buttons

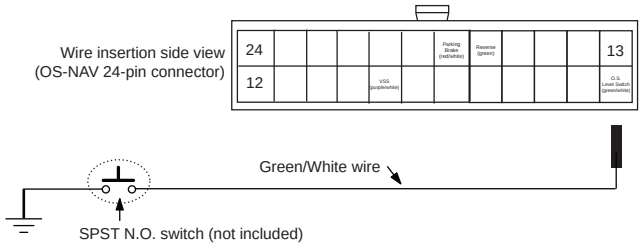

Press and Hold for 1.5 seconds to Activate Onstar Voice Recognizition or Bluetooth Phone Services
Ends Current Onstar Call or Rejects Incoming Bluetooth or OnStar Call
SRCE
Raises and Lowers Onstar the Audio Level While Onstar is Active (7 positions)

From OnStar Touch Pad

Activate Onstar Voice Recognizition Services
Connect to Onstar Personal Calling Setvices
Onstar Emergency Services

• To activate Bluetooth Services (if present) and OnStar Services if Bluetooth is not present press and hold the Speak SWC button for 1.5 seconds. Pressing the circled phone button on the OnStar touch pad will only activate OnStar Services.
• Pressing the SWC Vol+ or Vol- during an OnStar/Bluetooth connection will raise and lower the OnStar or Bluetooth audio level.
• Pressing the down arrow SWC button or circled phone button on the OnStar touch pad during an OnStar or Bluetooth call will end the current OnStar connection. The down arrow will also reject incoming OnStar or Bluetooth calls.
• OnStar Personal calling and Emergency services can be activated by the buttons on the mirror.

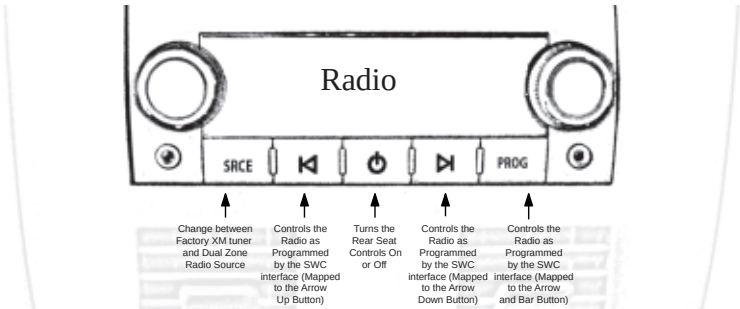
OnStar Level Control for Vehicles without SWC Buttons



• If SWC buttons are not present a SPST switch can be used to control the OnStar audio level during an OnStar connection.
• Using the provided Green/White wire, connect the non-terminated end to one side of a SPST normally open momentary switch (not included).
• The terminated end will go into the OS-NAV connector position X (see picture above).
• The other side of the SPST switch will be connected ground.
• When OnStar is active pressing the switch will raise the audio level 7 times before returning to the original level.

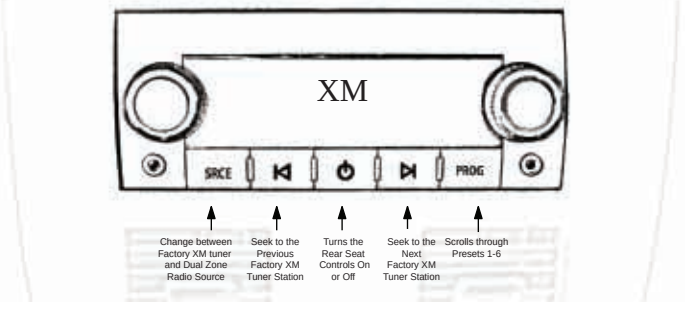
Using the Rear Seat Audio Controls

Using the Radios Dual Zone Source


Radio
SRCE
PROG
Change between Factory XM tuner and Dual Zone Radio Source
Controls the Radio as Programmed by the SWC interface (Mapped to the Arrow Up Button)
Turns the Rear Seat Controls On or Off
Controls the Radio as Programmed by the SWC interface (Mapped to the Arrow Down Button)
Controls the Radio as Programmed by the SWC interface (Mapped to the Arrow and Bar Button)

• Press the power button to turn the RSE Controls on. When Radio is displayed on the RSE Controls, the aftermarket radios rear speaker output will be heard through the headphone jacks. Putting the aftermarket radio into dual zone mode should change the output level of the rear speakers to a fixed level. This allows precise user adjustment from the level knobs on the RSE Controls (refer to aftermarket radio owners manual for model specific dual zone operation).
• The seek arrows and PROG button will control the radio as programmed by the SWC interface. These buttons are mapped to the SWC buttons as stated above.
• Pressing the SRCE button will toggle between the Factory XM tuner and the Radio as the RSE source. Pressing the power button will turn the RSE Controls off as well as turning the key off. The seek arrows and PROG button will continue to operate as stated (with the exception of SRCE which has no function) when the Rear Seat Controls are turned off.

Using the Factory XM Radio Tuner


XM
SRCE
PROG
Change between Factory XM tuner and Dual Zone Radio Source
Seek to the Previous Factory XM Tuner Station
Turns the Rear Seat Controls On or Off
Seek to the Next Factory XM Tuner Station
Scrolls through Presets 1-6

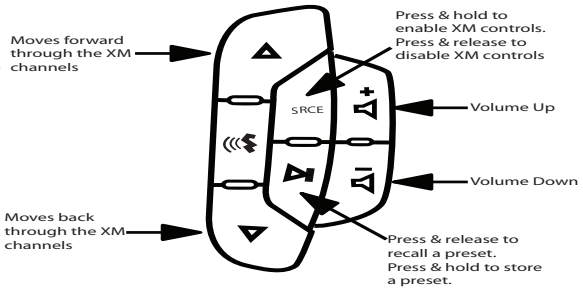
• Press the power button to turn the RSE Controls on. If Radio is displayed press the SRCE button to select factory XM tuner mode. When XM followed by the channel number is displayed factory XM tuner audio will be heard through the headphone jacks.
• The Seek arrows will control the factory XM radio tuner and select the desired station.
• The PROG button will scroll through Presets 1-6
• Pressing the SRCE button will toggle between the Factory XM tuner and Radio as the RSE source. Pressing the power button or turning the key off will turn off the RSE Controls.
• The factory XM tuner must remain serviced to take advantage of this feature. Visit www.xmradio.com for a complete up-to-date channel listing and service options.
• In order for the RSE controls to properly work the XM tuner, the front XM controls must be set to off.

Using the Factory XM Radio Tuner With the Steering Wheel Controls

• To activate the XM controls press and hold the “Source” button until a chime is heard. The Driver Information Center (DIC) in the instrument cluster will display “XM Control On”.
• Arrow up moves forward through the channels. The channel name will be displayed on the DIC.
• Arrow down moves backwards through the channels. The channel name will be displayed on the DIC.
• To store a preset, first choose the preset location by pressing the “Play” button repeatedly. The DIC will display the XM preset locations. When the desired preset location is displayed, tune to the desired station, then press and hold the “Play” button to store
• To recall a preset simply press the “Play” button repeatedly until the desired preset is displayed.
• To de-activate the XM controls press and release the “Source” button

PLEASE NOTE: You MUST be installing an aftermarket radio that is equipped with an auxiliary input to be able to retain the factory XM audio. If the vehicle is equipped with steering wheel controls other than the ones pictured to the right the OS-4 will not be able to control the factory XM tuner as the required buttons are not present.

Factory XM Controls

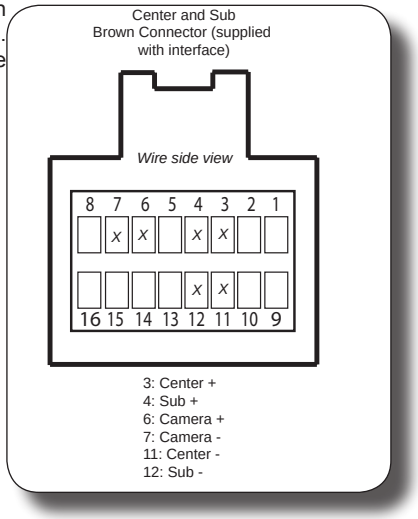

Moves forward through the XM channels
Press & hold to enable XM controls. Press & release to disable XM controls
SRCE
Volume Up
Volume Down
Moves back through the XM channels
Press & release to recall a preset. Press & hold to store a preset.

Installation Notes

1. When the interface is connected to the vehicle for the first time the car must be running so all vehicle features are recognized by the interface. Once the interface has been plugged in for the first time it is necessary to shut the vehicle off and let it sit for at least 5 minutes. Once the vehicle is started again the XM tuner will be recognized by the OS-4.
2. DO NOT cut the Brown loop on the SWC interface connector. Program the radio specific SWC Interface for version #2.
3. When the Rear Seat Audio jacks are activated in any vehicle OTHER than the Cadillac Escalade or a UQA amplified vehicle the rear speakers will mute.
4. The headphone jacks will play the rear zone source selected by the head unit (refer to the new radios instruction manual for details on this feature if equipped). Maximize the rear zone volume level (this will reduce unwanted noise). During an OnStar call the front speakers play OnStar, the rear speakers are muted and the headphones will continue to play the rear zone audio source.
5. Using the Center and Sub cable for factory reverse camera retention.

   • With the supplied brown connector NOT attached to the vehicles brown radio connector: lift the upper and lower locking tabs near the wire insertion part of the supplied brown connector which houses the center and sub RCA cables.
   • Depress the silver exposed locking tabs on which ever RCA connector (center or sub) is not being used during this installation.
   • After removing both shield (black) and center conductor (red or white) pins - re-insert as follows (see image aside).
   • Pin 6 is the camera+ signal and Pin 7 is the camera- signal. After inserting the pins clasp the locking tab back down to lock the moved pins into place.
   • Fit the modified brown connector into the vehicles brown connector and plug the moved RCA cable into the aftermarket radios camera input (mark this RCA cable for future reference).
   • Use the supplied reverse output wire (green wire in OS-NAV connector) for automatic switching when the vehicle is put into reverse.

6. DTS, Equinox, Torrent and Vue Installation Notes:
   If the vehicle is equipped with a factory amplifier other than a Bose amplifier and OnStar audio is not heard during operation the Black/White wire located in the OS-GMLAN29 harness needs to be cut in half and insolated at both ends (c2 vehicle (16pin) connector pin 8) .



Testing and Verifying Operation

1. Turn ignition on. The red ignition LED inside the interface will turn on and the +12v accessory wire will turn on.
2. Turn on the radio and check balancing and fading. Note: **The RPO code UQA (standard digital Bose® amplifier)** will not fade as the rear outputs of aftermarket radio do not adjust the amplifier.
3. Pressing the OnStar® button will turn off the rear speakers and allow the OnStar® audio to be heard in the two front speakers. The OnStar® active red LED will also turn on. When OnStar® disconnects, the radio will un-mute or turn back on and the OnStar® LED will turn off.
4. Turn off vehicle and remove key. RAP will be active and keep the radio on for 10 minutes or until the drivers door is opened.
5. The red ignition On LED and radio will turn off when RAP turns off or the drivers door is opened.
6. Pressing the Mute/OnStar® button on the steering wheel for 1.5 seconds will also activate Onstar®.

DISCLAIMER: Under no circumstances shall the manufacturer or the distributors of the OS-4 parts be held liable for consequential damages sustained in connection with the OS-4. The manufacture and it's distributors will not, nor will they authorize any representative or any other individual to assume obligation or liability in relation to the OS-4 other than its replacement.

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